29 passes the neutral position. If the user takes a hand off first apparatus 29 before it arrives at the neutral position, apparatus 29 is energized to return to stopper 24B. If the user takes a hand off apparatus 29 after it passes the neutral position, apparatus 29 is energized to move to stopper 24C. In either case, first apparatus 29 swivels to either one of the ends, and stops and stays still at the end. Since the neutral position is unstable, first apparatus 29 hardly stops there.

[0051] FIG. 8C shows a status of the swivel mechanism when display 28 is faced up, i.e., the cellular phone is doubled back and display 28 shows in front. The resilient repulsion of spring 26 energizes the swivel mechanism along the arrow mark such that protrusion 25B is urged to stopper 24C. First apparatus 29 connected to mounting bracket 27 stops and stays still. In this status, when the user folds the cellular phone, display 28 shows in front as shown in FIG. 7.

[0052] Second Exemplary Embodiment

[0053] A coupling device in accordance with the second embodiment is demonstrated with reference to FIG. 9A-FIG. 9C. Elements similar to those in the first embodiment have the same reference marks and the descriptions thereof are omitted here. A construction of coupling device 37 of the second embodiment is similar to that of coupling device 29 of the first embodiment. Only a difference is that small hole 38C, to which end 26D of spring 26 is inserted, is provided to a place at a different angle from small hole 24D of the first embodiment.

[0054] As shown in FIG. 9A-FIG. 9C, small hole 38C is provided on the left side from a middle point between stoppers 24B, 24C. This structure allows the centers of small holes 38C, 25C and center 25E of shaft 25 to be aligned. A neutral position of resilient repulsion of spring 26 locates on the left side from the middle point between stoppers 24B, 24C. Therefore, when first apparatus 29 is at the neutral position, an angle formed by first and second apparatuses 29, 31 can deviate from a right angle. As a result, this structure can reduce damages of the cellular phone when it is folded. Spring 26 receives the strongest torque at the neutral position of the resilient repulsion.

[0055] FIG. 9A shows a normal status of the swivel mechanism with its display 28 facing in front, as shown in FIG. 3. Ends 26D, 26C of spring 26 are inserted in small holes 38C, 25C respectively, and the resilient repulsion of this spring 26 energizes the swivel mechanism along the arrow mark such that protrusion 25B is urged to stopper 24B. First apparatus 29 (not shown) connected to mounting bracket 27 stops and stays still.

[0056] FIG. 9B shows a status of the swivel mechanism when first apparatus 29 is at the neutral position of the resilient repulsion of spring 26. The neutral position is on the left side from a middle point between stoppers 24B and 24C. First apparatus 29 thus does not face second apparatus 31 at a right angle, but it faces second apparatus 31 in a laterally slanted (aslant) manner as shown in FIG. 10. From the status shown in FIG. 9A, a user starts swiveling first apparatus 29 clockwise, then the resilient repulsion of spring 26 resists the swiveling on the way to the neutral position. However, the repulsion assists the swiveling after first apparatus 29 passes the neutral position, as shown by arrow marks in FIG. 9B.

[0057] FIG. 9C shows a status of the swivel mechanism when display 28 is faced up, i.e., the cellular phone is doubled back and display 28 shows in front. The resilient repulsion of spring 26 energizes the swivel mechanism along the arrow mark such that protrusion 25B is urged to stopper 24C. First apparatus 29 connected to mounting bracket 27 stops and stays still. In this status, when the user folds the cellular phone, display 28 shows in front as shown in FIG. 7.

[0058] Because the neutral position is unstable, first apparatus 29 hardly stops at the neutral position shown in FIG. 9B. However, it stops there sometime anyway. Even if first apparatus 29 stops at the neutral position, first apparatus 29 does not face second apparatus 31 at a right angle, but it escapes from a place where the right angle is formed with second apparatus 31. Therefore, if first apparatus 29 is overlaid onto second apparatus 31 by folding, and a corner of apparatus 29 hits operating board 30 of apparatus 31, the corner slips on the operating board, and apparatus 29 deviates from the neutral position. Then spring 26 energizes first apparatus 29 to swivel to either one of the stoppers nearer to the slipped position. Therefore, first apparatus 29 or second apparatus 31 is scarcely damaged.

[0059] Third Exemplary Embodiment

[0060] A coupling device in accordance with the third embodiment is demonstrated hereinafter. Elements similar to those in the previous embodiments have the same reference marks and the descriptions thereof are omitted here. FIG. 11 is a perspective outline drawing of the coupling device, and FIG. 12 shows a perspective exploded view of the same coupling device. Main frame 40 of coupling device 39 includes flanges 40A, 40B at respective ends and cylinder 41 at the center. Flanges 40A, 40B have square holes 40C, 40D respectively. Cylinder 41 has a through-hole 41A running vertically to an axis line extending between each center of square holes 40C, 40D. Swiveling shaft 42 fits to hole 41A in a swivelable way. Flange 42A at a first end of shaft 42 has protrusion 42B on its rim. Two stoppers 41B, 41C are provided to circular recess 41D. Protrusion 42B and stoppers 41B, 41C regulate a swivelable range within 180°. Shaft 42 has protrusion 42C on an end face of flange 42A at a place nearer to protrusion 42B. Protrusion 42C has side face 42E which bows outward. If there is no problem in strength, protrusion 42C may be a protrusion of which sectional view shapes in a circle or a semi-circle. Mounting bracket 27 is fixed to a second end, which is noncircular section 42D, of shaft 42.

[0061] A pair of slits 40E (not shown), 40F are disposed inside flanges 40A, 40B respectively. Holding section 43A of spring 43 made from elastic thin metal plate is press-fitted downward into slits 40E, 40F, and held in the slits. Claws 43B prevent holding section 43A from coming off. Linear section 43E of spring 43 urges elastically protrusion 42C of shaft 42 with a given pressure.

[0062] A method of assembling a folding cellular phone, which uses coupling device 39 discussed above, is the same as demonstrated in the first embodiment. The description of the assembling method is thus omitted here.

[0063] An operation of a swivel mechanism in accordance with the third embodiment is demonstrated with reference to FIG. 13A-FIG. 13C. FIG. 13A illustrates a normal status (as shown in FIG. 3) of the swivel mechanism, i.e., display 28 faces in front. Linear section 43E of spring 43 urges